

ABSTRACT

The quadrennial need study was developed to assist in identifying county highway financial needs and in the distribution of the road use tax funds (RUTF) among the counties in the state. During the period since the need study was first conducted using the HWYNEEDS software, between 1982 and 1994, there have been some large fluctuations in the level of funds distributed to individual counties. A recent study, which performed a sensitivity analysis of the software system used to support the need study found that one of the major factors effecting the volatility in the level of fluctuations is the quality of the pavement condition data collected and the currency of these data. The study reported in this document investigates the use of the automated distress data, that were collected for the Iowa Pavement Management Program (IPMP) for the paved county roads and input to the need study software, as a possibility for improving the quality and timeliness of pavement condition data. The underlying hypothesis for this study is that the IPMP data can be used to support the need study, improve its results, and possibly reduce the volatile fluctuations of money allocated to counties in consecutive need studies. The automatically collected data should alleviate the problems created by the inherent subjectivity and the lack of currency in the manually collected data.

This study identifies a procedure by which the automated distress data collected for the IPMP can be integrated into the quadrennial need study software program. IPMP condition data are used to replace the pavement surface ratings collected manually by the Iowa Department of Transportation (Iowa DOT) on a 10-year rotation (condition is collected for one-tenth of the entire county road network resulting in complete coverage every 10 years).

A pilot study area was selected to demonstrate the use of the new distress data. The pilot study consisted of several corridors across several counties in a variety of areas in the state. Recommendations are identified for the use of the automated distress data and also in terms of making some changes to the current process of the quadrennial need study. Future research areas are also identified.